

**PRELIMINARY CLOSE OUT REPORT  
BAILEY WASTE DISPOSAL SITE  
ORANGE COUNTY, TEXAS**



**REGION 6**

**SEPTEMBER 1998**

100030

# Bailey Waste Disposal Site Orange County, Texas

## **I. INTRODUCTION**

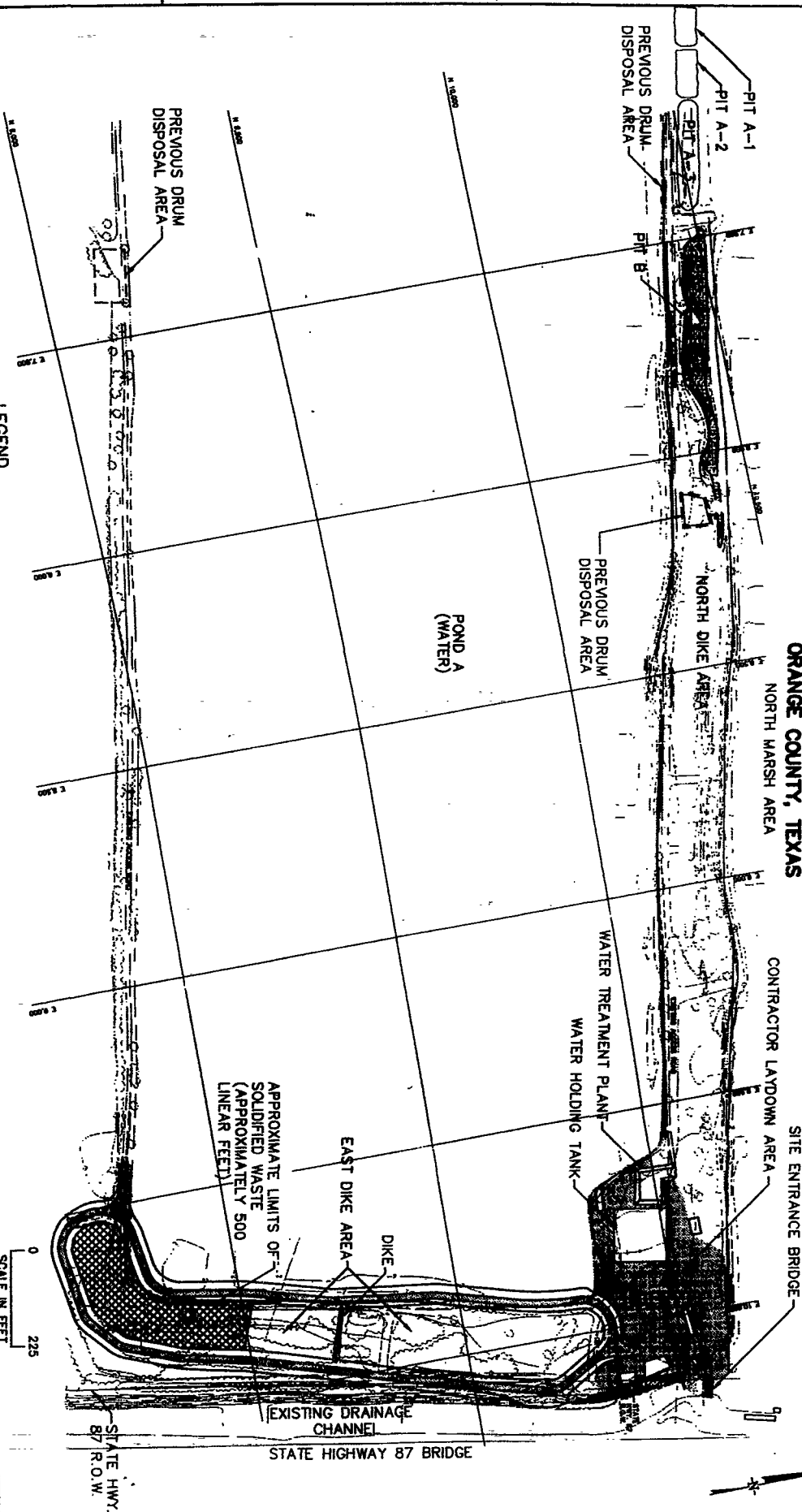
This Preliminary Close Out Report documents that the Bailey Site Settlers Committee (BSSC) has completed all construction activities for the Bailey Waste Disposal site in accordance with OSWER Directive 9320.2-09, *Close Out Procedures for National Priorities List Sites*. The U.S. Environmental Protection Agency (EPA) and the Texas Natural Resource Conservation Commission (TNRCC) conducted a pre-final site inspection on July 31, 1997. At the completion of the pre-final site inspection, a punch list of the remaining items to be completed was developed and given to the BSSC's contractor. On August 20, 1997, the EPA conducted a final site inspection. All items on the pre-final site inspection punch list were satisfactorily addressed with the exception of the removal of the silt fences, which were left in place until the establishment of vegetative growth on the cap surface. Since the final site inspection, four quarterly site inspections have occurred. During the third quarterly site inspection held on May 29, 1998, it was noted by the EPA that the silt fences had been removed. The remedy has been constructed in accordance with the remedial design plans and specifications and is operational and functional.

## **II. SUMMARY OF SITE CONDITIONS**

The Bailey Waste Disposal Superfund site is located approximately three miles southwest of Bridge City in Orange County, Texas. The site was originally part of a tidal marsh near the confluence of the Neches River and Sabine Lake. Two ponds, A and B, were constructed on the property by the landowner, Mr. Joe Bailey, as part of the Bailey Fish Camp in the early 1950s. The ponds were constructed by dredging the marsh and piling sediments to form dikes which surround the ponds. The fish camp was active until September 1961, when it was destroyed by Hurricane Carla, which introduced saline waters into the ponds killing the fresh-water fish. The total site, including the two rectangular ponds, occupies approximately 280 acres. However, the area of the site that required remediation comprises approximately 12 acres.

Mr. Bailey allowed the disposal of industrial and municipal waste within the dikes along the north and east margins of Pond A (the North Dike Area and the East Dike Area, respectively) during the 1950s and 1960s. Waste was also disposed in the Drum Disposal Area and in the North Marsh Area. The locations of these areas and other site features are shown in Figure 1. Major contaminants within the waste included ethylbenzene, styrene, benzene, chlorinated hydrocarbons and polynuclear aromatic hydrocarbons. Waste disposal operations at the Bailey Waste Disposal site ceased in 1971.

**SITE PLAN  
(JULY 1996)  
BAILEY SUPERFUND SITE  
ORANGE COUNTY, TEXAS**



**LEGEND**

- APPROXIMATE LIMITS OF SOLIDIFIED WASTE
- APPROXIMATE LIMITS OF PIT B
- APPROXIMATE LIMITS OF GRAVEL SURFACING

**NOTES:**

1. BASE MAP PREPARED BY HARDING LAWSON ASSOCIATES, HOUSTON, TEXAS.
2. FIGURE FROM FOCUSED FEASIBILITY STUDY SEPTEMBER 1996.
3. SOLIDIFIED WASTE ON EAST DIKE AREA COMPLETED AS PART OF ORIGINAL REMEDY.

**Geosyntec Consultants**  
ATLANTA, GA

PROJECT NO. GE3913-630 FIGURE NO. 1.  
DOCUMENT NO. GA951411 FILE NO. 3913F004

In 1984, the EPA proposed the site for inclusion on the National Priorities List (NPL). The site was placed on the NPL on May 20, 1986. The site was initially a State lead Superfund site and the Texas Water Commission (TWC)(predecessor to the TNRCC) was the lead agency. A remedial investigation was completed in October 1987 under TWC's direction. The remedial investigation concluded the following: the site has had no impact on drinking water; in the unlikely event that site constituents were to migrate via a ground water pathway, it would take more than 800 years for them to reach potable ground water; but existing site conditions could degrade through a flood or other natural occurrences, releasing the contaminants contained in the dikes into the surrounding marsh. The shallow ground water beneath and adjacent to the site is saline and not suitable for human consumption. The closest public drinking water supply well, located approximately 1.5 miles northeast of the site, is estimated to be approximately 385 feet deep. The nearest municipal water supply wells are located approximately 2.6 miles northeast of the site and have a reported depth of approximately 585 feet. There has been no development in the immediate vicinity of the Bailey site, nor is it likely to be suitable for future development due to prohibitions against development in wetland areas.

After the remedial investigation, the EPA took over as the lead agency. A feasibility study was completed in April 1988. As part of the feasibility study, a risk assessment was conducted. The risk assessment considered the following exposure pathways:

- direct contact with the site;
- surface water contamination from site runoff;
- ground water contamination from leaching of site contaminants; and
- consumption of fish and other marine wildlife.

The direct contact exposure scenario was found to present the highest calculated cancer risk:  $9 \times 10^{-6}$  for an adult exposed to the maximum concentrations of contaminants found at the site and  $1.2 \times 10^{-5}$  for a child. Please note that a risk of  $1 \times 10^{-6}$  (1 in 1,000,000) means that one additional person out of one million people exposed could possibly develop cancer as a result of extensive continuous exposure to the site. To address the site risk, the feasibility study report recommended in-situ solidification of the site waste followed by construction of a clay cap over the solidified waste as the preferred remedy for the site.

The site's Record of Decision (ROD) was signed in June 1988. The EPA selected in-situ stabilization and capping as the site's remedy. According to the ROD, the functions of solidification were to "reduce the mobility of the wastes and provide strength to support a clay cap." The goals and objectives of the selected remedy were "to minimize the potential for waste migration and the potential for short-term air emissions resulting from remediation."

Before starting the site's remedial design, the EPA, the Department of Justice, and

potentially responsible parties negotiated a settlement for performance of the site's remedial design and remedial action (RD/RA). The settlement requires the BSSC to conduct the RD/RA and for EPA to reimburse them for 20% of the eligible RD/RA costs. A Consent Decree defines the terms of this settlement. The Consent Decree became legally binding when entered by the U.S. District Court for the Eastern District of Texas on April 30, 1990.

The remedial design was completed in November 1991. In August 1992, the BSSC awarded Chemical Waste Management (CWM) the remedial action contract. CWM mobilized to the site in September 1992. After mobilization, CWM's next task was to better define the extent and volume of site wastes by boring and trenching the waste areas. As a result of this task, the estimated volume of site waste increased from approximately 100,000 cubic yards to 156,000 cubic yards. Other initial activities included the construction of an onsite water treatment plant and the construction of a seven foot earthen dike around the East Dike Area. The purpose of the earthen dike was to prevent storm water from coming in contact with site contaminants during the waste solidification activities. Any storm water coming in contact with the waste during waste stabilization activities was contained within the earthen dike, processed in the site's water treatment plant, and discharged into Pond A.

Upon completion of the earthen dike around the East Dike Area in the summer of 1993, CWM excavated and relocated waste from the site's Drum Disposal Area and placed this waste into the south end of the East Dike Area. In-situ stabilization activities then commenced. Over the next several months, CWM tried several in-situ stabilization techniques but was unable to consistently meet the project stabilization specifications. By January 1994, CWM decided to stop its in-situ stabilization efforts, claiming the project's in-situ stabilization specifications were not achievable.

In order to determine if the in-situ stabilization specifications were achievable, the BSSC hired contractors to conduct a pilot scale in-situ stabilization demonstration within the site's East Dike Area. The in-situ stabilization demonstration started in the later part of 1994 and was completed in February 1995. The contractors were able to achieve the project stabilization specifications in the pilot area; however, verification of the stabilization specifications relied upon sampling the stabilized material in the uncured (wet sampling) state. The "wet sampling" method differed from the previous specified sampling method in that samples were taken from the pilot test area shortly after mixing waste with stabilizing agents and allowing the sample to cure (i.e., harden) in the laboratory before testing. The previous specified sampling method required letting the waste and stabilization agent mixture cure in the field followed by obtaining (i.e., coring out) samples for testing. While samples collected using the wet sampling method consistently passed the stabilization specifications, it remains uncertain as to whether samples collected by this method accurately represent field conditions. The pilot study estimated that full-scale stabilization would cost at least twice as much per cubic yard as was estimated by CWM. The pilot study did not address potential stabilization problems in the northern end of the East Dike or in the North Dike Area where the waste is deeper and contains a larger percentage of municipal solid waste, debris, rubber crumb, and tarry waste.

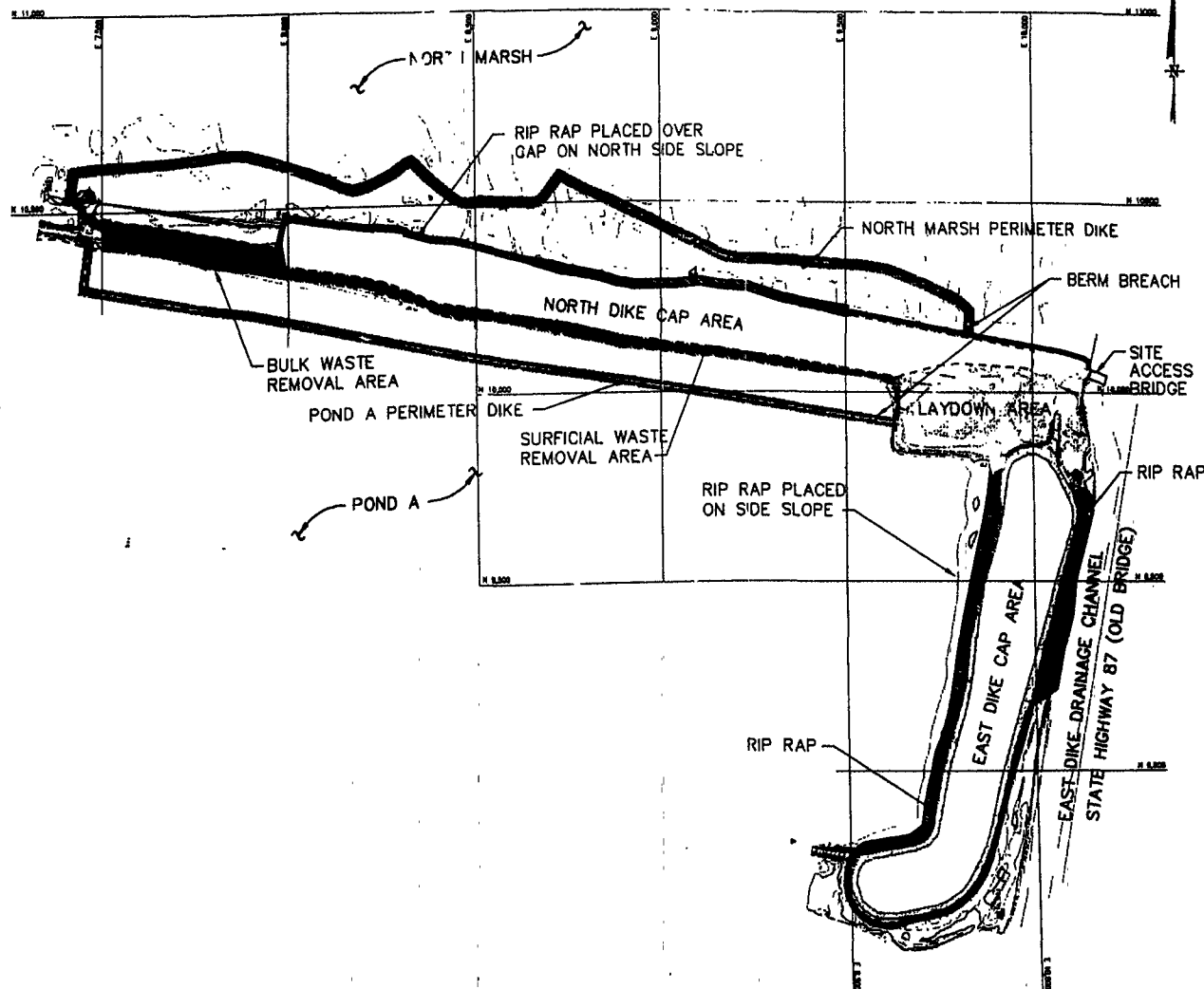
In the summer of 1995, the EPA requested the BSSC to perform a Focused Feasibility Study (FFS) to identify whether more expedient and effective remedial actions for the site might be available. Reasons for conducting the FFS included the previous difficulties in meeting the project stabilization specifications and the fact that successful implementation of the original remedy would, if possible at all, be significantly more difficult, more time-consuming, and more costly to implement than was contemplated at the time the 1988 ROD was issued.

In June 1995, the BSSC contracted with Parsons Engineering Science (Parsons ES) to assume the contract administration/construction management services for the site. GeoSyntec Consultants (GeoSyntec) was contracted to provide engineering design services. FFS activities commenced in June 1995. The designs for interim remedial actions, known as the Modified North Marsh Area Remediation and Pit B Remediation, were developed concurrently. Through a competitive bid selection process, OHM Remediation Services (OHM) was contracted to conduct the interim remedial actions. The interim remedial actions took place between January and September 1996 and addressed the site's most problematic (i.e., mobile, tarry) waste. The interim remedial actions consisted of the excavation of industrial waste tars and underlying affected sediments to a visually clean standard from the North Marsh Area and Pit B. Approximately 20,000 cubic yards of industrial waste tars and underlying affected sediments were excavated and taken off-site for disposal to a Class 1 industrial waste landfill. These activities are described in the following EPA documents:

- Superfund Explanation of Significant Differences for the Record of Decision  
Bailey Waste Disposal Superfund Site  
Orange County, Texas,  
Dated - February 2, 1996
- Superfund Explanation of Significant Differences for the Record of Decision  
Bailey Waste Disposal Superfund Site - Pit B  
Orange County, Texas  
Dated - May 1, 1996

The FFS was completed in October 1996. Based on the results of the FFS, a revised remedy was selected by EPA in a December 1996 ROD Amendment. The revised remedy consisted of the consolidation of site wastes within the North and East Dike Areas and the construction of lightweight composite caps over these areas. The design for the remedy was completed in December 1996. The BSSC contracted with Parsons ES to provide construction management/contract administration services. GeoSyntec provided construction quality assurance in the field during construction activities. Through a competitive bid selection process, OHM was contracted to conduct the revised remedial action. The revised remedial action was completed in August 1997. The Amended ROD and the two Explanation of Significant Differences provide an overall site remedy that is protective of human health and the environment and complies with Federal and State applicable or relevant and appropriate requirements. Figure 2 shows key site features following completion of the final remedial action.

**SITE PLAN  
(AUGUST 1997)  
BAILEY SUPERFUND SITE  
ORANGE COUNTY, TEXAS**




**NOTES:**

1. DRAWING BASED ON PREVIOUS SITE TOPOGRAPHIC INFORMATION AND DESIGN DRAWINGS. DRAWING IS NOT BASED ON FINAL AS-BUILT DATA.
2. LOCATION OF EDGE OF WATER IS SUBJECT TO TIDAL VARIATIONS. AVERAGE TIDE ELEVATIONS ARE: LOW TIDE - -2.0 FEET (MSL) AND HIGH TIDE +1.0 FEET (MSL). TIDE ELEVATIONS ARE SUBJECT TO VARIATION DEPENDING ON SEASON AND LOCAL WEATHER CONDITIONS.
3. RIPRAP LOCATED ON ALL SLOPES.

**LEGEND**

- EXISTING CONTOUR (FEET)
- - - ANCHOR TRENCH
- RIP RAP

0 300  
SCALE IN FEET

 <b>GEOSYNTEC CONSULTANTS</b> ATLANTA, GA	
PROJECT NO. GE3913-630	FIGURE NO. 2
DOCUMENT NO.	FILE NO. 3913F005

On May 4, 1998, the EPA approved the Final Remedial Action Report for the Bailey Superfund Site (Parsons Engineering Science, Inc. and GeoSyntec Consultants, April 1998). The EPA and the TNRCC reviewed and commented on the draft report prior to it being finalized. Responses to comments on the draft report were transmitted to EPA on April 13, 1998. The final report documents that the remedial action for the site was completed in accordance with the ROD, Explanation of Significant Differences, and ROD Amendment for the site and that the final site inspection has been conducted for construction activities.

### **III. DEMONSTRATION OF CLEANUP ACTIVITY QA/QC**

Activities at the site were consistent with the ROD, Explanation of Significant Differences, and ROD Amendment, and all work plans issued to contractors for design and construction of the remedial action, including sampling and analysis. The remedial design documents, including a Construction Quality Assurance Project Plan (GeoSyntec Consultants, April 1997) were developed to conform to relevant EPA guidance. Construction elements addressed in the Construction Quality Assurance Plan included general earthwork, geosynthetics, erosion control, and wastewater collection and treatment. Documentation of the required quality assurance and quality control monitoring and testing procedures were provided as appendices to Final Remedial Action Report for the Bailey Superfund Site (Parsons Engineering Science, Inc. and GeoSyntec Consultants, April 1998). The QA/QC program used throughout the remedial action was rigorous in conformance with EPA and State standards; therefore, EPA and the State determined that analytical results are accurate to the degree needed to assure satisfactory execution of the remedial action and consistency with the ROD, Explanation of Significant Differences, and ROD Amendment and the remedial design plans and specifications.

### **IV. ACTIVITIES AND SCHEDULE FOR SITE COMPLETION**

In order to ensure that the remedial action for the site, as designed and as constructed, is maintained over time, long-term maintenance and monitoring activities will need to be conducted. The long-term maintenance and monitoring activities will be conducted by the BSSC and are outlined in the EPA approved Final Inspection, Maintenance and Monitoring Plan, Bailey Superfund Site (Parsons Engineering Science and GeoSyntec Consultants, September 1997). The maintenance and monitoring activities include:

- maintenance of the integrity and effectiveness of the final cover, including making repairs to the cap to correct the effects of settlement, subsidence, erosion, or other similar events; and
- preventing surface water/storm water run-on and run-off from eroding or otherwise damaging the final cover.



The maintenance and monitoring program will be conducted as long as access to the private property (not owned by the BSSC) can be maintained. It is the BSSC's responsibility to maintain access agreements in order to conduct long-term maintenance and monitoring activities.

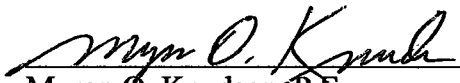
Long-term effectiveness of the remedy will also be contingent upon the implementation of all necessary institutional controls. Institutional controls are legal and administrative measures that prevent exposure to contaminants at concentrations above health-based risk levels that may remain at a site. Usually institutional controls limit activities at or near sites. Institutional controls include requirements for providing notice (i.e., deed recordation) in the real property records for properties where residual contamination will remain.

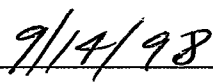
For the Bailey Waste Disposal site, institutional controls are not currently in place. The institutional controls will include restrictions on activities which would compromise the effectiveness of the final cover system as well as deed recordation. On October 6, 1997, representatives from the EPA, U.S. Department of Justice (DOJ), TNRCC, BSSC, and site landowners met to discuss institutional controls. No subsequent meetings have occurred or subsequent correspondence has been generated since this meeting. Efforts will be undertaken by EPA to bring together all appropriate parties (i.e., landowners, BSSC, TNRCC, DOJ, State and local regulatory agencies, etc.) to develop and implement all necessary institutional controls. EPA's estimated completion date for this activity is August 1999. However, efforts will be made by the EPA and the TNRCC to encourage all of the involved parties to work together and implement the necessary institutional controls well in advance of the August 1999 date. Once the institutional controls are finalized, the Final Closeout Report will be completed. The estimated completion date for the Final Closeout Report is December 1999. The following table includes activities which will be completed prior to site close out.

<b>Task</b>	<b>Estimated Completion</b>	<b>Responsible Organization(s)</b>
Approve Five Year Review	12/31/98	EPA
Continue implementation of the EPA approved Operation and Maintenance Plan	Ongoing	BSSC
Implementation of all necessary institutional controls.	08/31/99	EPA, DOJ, TNRCC, BSSC, Site Landowners, State and local regulatory agencies.
Approve Final Close Out Report	12/31/99	EPA

**V. FIVE YEAR REVIEW**

Hazardous substances will remain at the site above health-based levels after the completion of the remedial action. Pursuant to CERCLA section 121(c) and as provided in OSWER Directive 9355.7-02, Structure and Components of Five-Year Reviews, May 23, 1991, OSWER Directive 9355.7-02A, Supplemental Five-Year Review Guidance, July 26, 1994, and Second Supplemental Five Year Review Guidance dated December 21, 1995, EPA must conduct a statutory review. The Five-Year Review is scheduled for completion by December 1998.

  
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Myron O. Knudson, P.E.  
Director  
Superfund Division

  
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Date